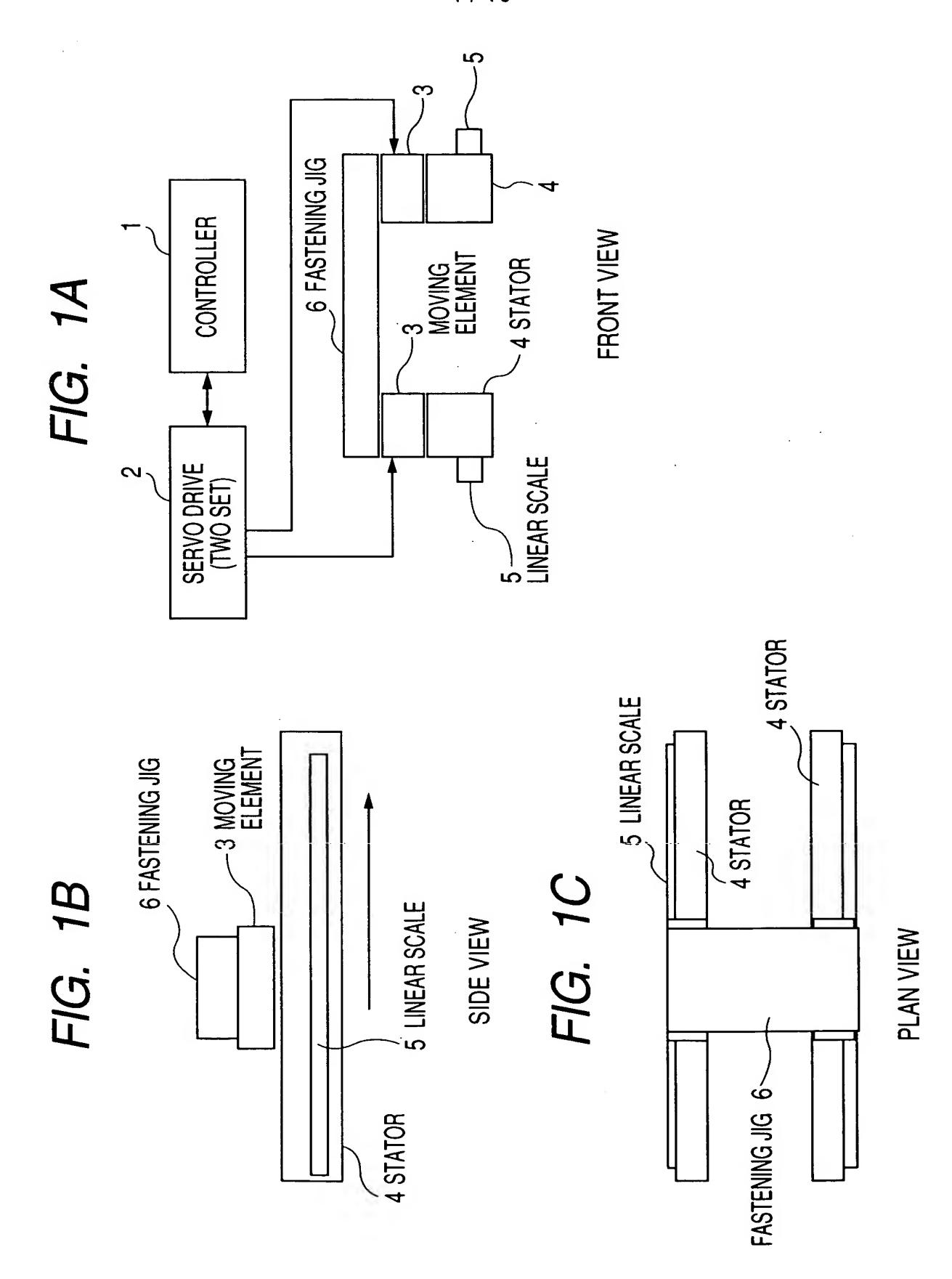
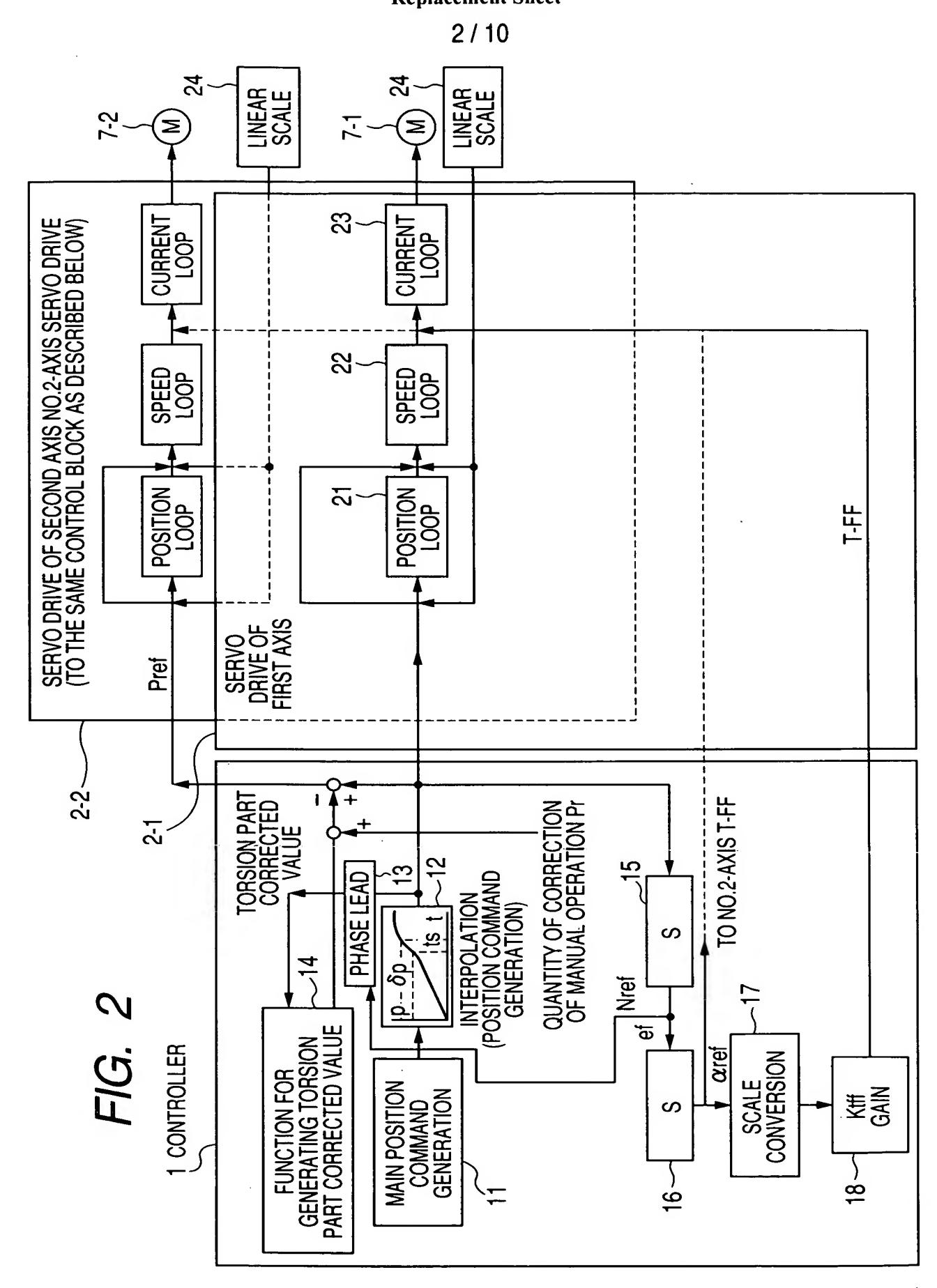
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FIG. 3

STEP 1

RETURN TO THE ORIGIN

THE POSITION OF THE FIRST AXIS AS THE MAIN AXIS IS CONTROLLED AND THE OTHER AXIS IS ALLOWED TO FREELY RUN AND RESET TO ZERO.

STEP 2

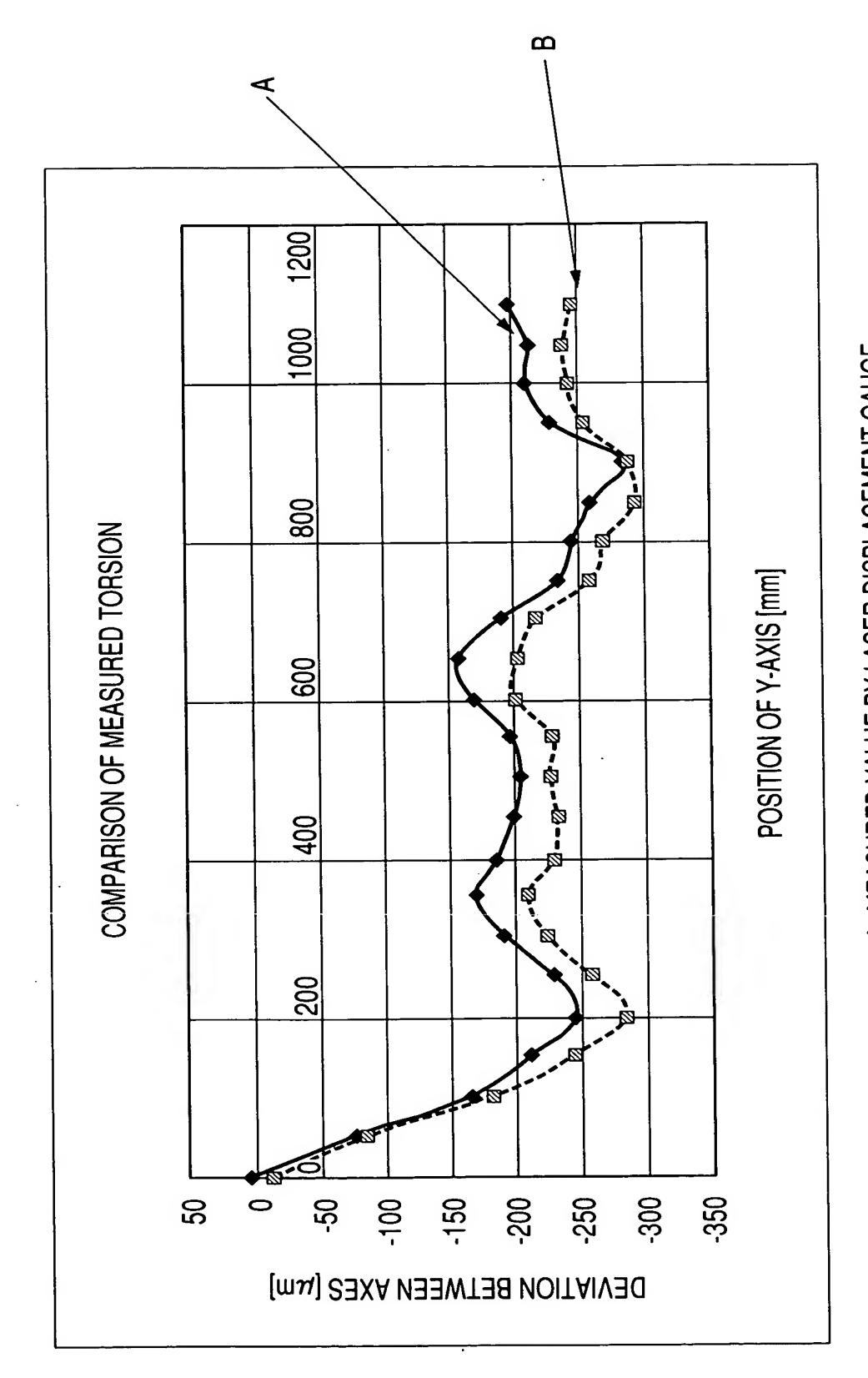
MEASUREMENT OF TORSION DATA BETWEEN TWO AXES

A METHOD IS CARRIED OUT IN WHICH A DEVIATION BETWEEN TWO AXES
(POSITION FB OF FIRST AXIS-POSITION FB OF SECOND AXIS) IS
AUTOMATICALLY MEASURED AT AN ARBITRARY PITCH TO STORE THE
DEVIATION IN A DATA BASE. AT THIS TIME, WHEN THE TWO AXES ARE
ELECTRICALLY OPERATED AT THE SAME TIME UNDER A SPEED CONTROL
AND A POSITION CONTROL LIKE DURING THE RETURN TO THE ORIGIN
OPERATION, A MOTOR OF EACH AXIS GIVES A STRESS TO A MACHINE SIDE.
THUS, CHARACTERISTICS SUCH AS THE DISTORTION OF THE MACHINE
ITSELF CANNOT BE GRASPED. ACCORDINGLY, IN DRIVING DURING THE
MEASUREMENT, THE MAIN AXIS (ANY ONE OF THE TWO AXES MAY BE
USED) IS OPERATED AT LOW SPEED BY CONTROLLING A POSITION AND
THE OTHER AXIS IS ALLOWED TO FREELY RUN AND FOLLOW THE MAIN
AXIS TO MEASURE THE DEVIATION OF THE TWO AXES.

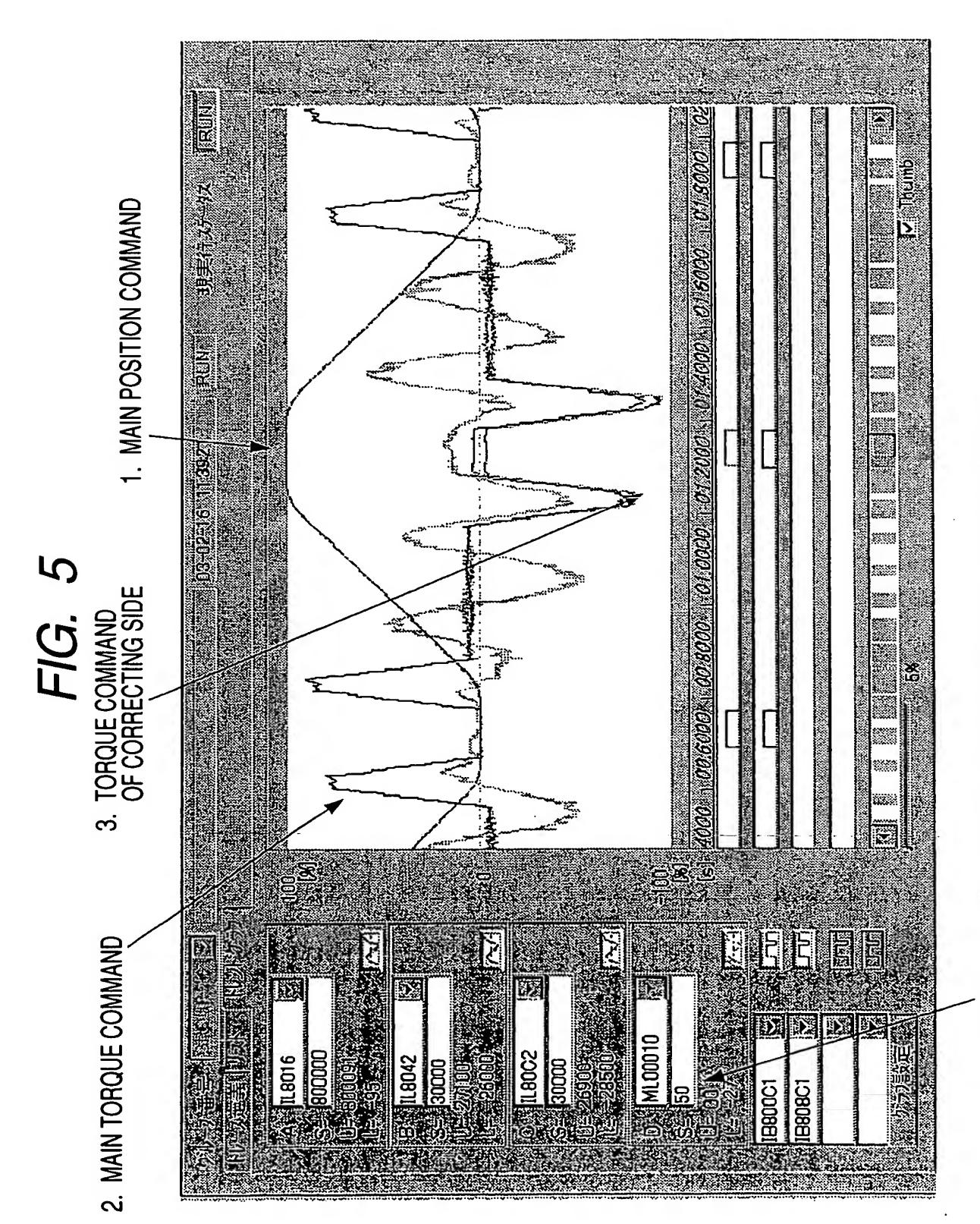
STEP 3

GENERATE FUNCTION OF TORSION DATA

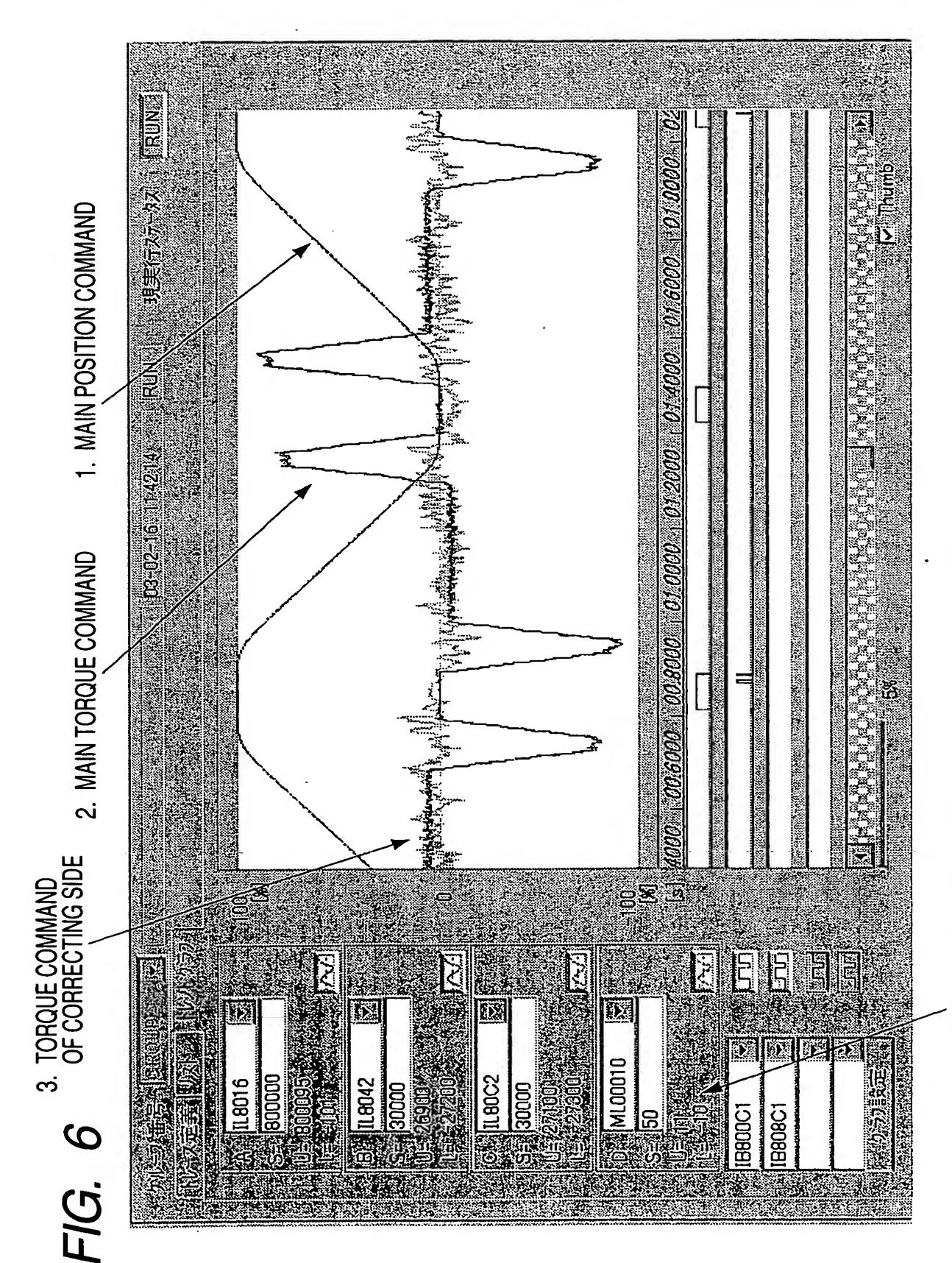
A FUNCTION IS GENERATED THAT HAS A TRAVELING POSITION AS AN INPUT AND THE DEVIATION BETWEEN THE AXES MEASURED IN THE STEP 2 AS AN OUTPUT. SINCE THE INPUT ARBITRARILY CHANGES DEPENDING ON A MOVING DISTANCE, THE DEVIATION MEASURED AT THE ARBITRARY PITCH IN THE STEP 2 IS SUBJECTED TO A LINEAR INTERPOLATING PROCESS IN THE FUNCTION AND THE OBTAINED DEVIATION IS OUTPUTTED.



A: MEASURED VALUE BY LASER DISPLACEMENT GAUGE B: MEASURED VALUE BY CONTROLLER

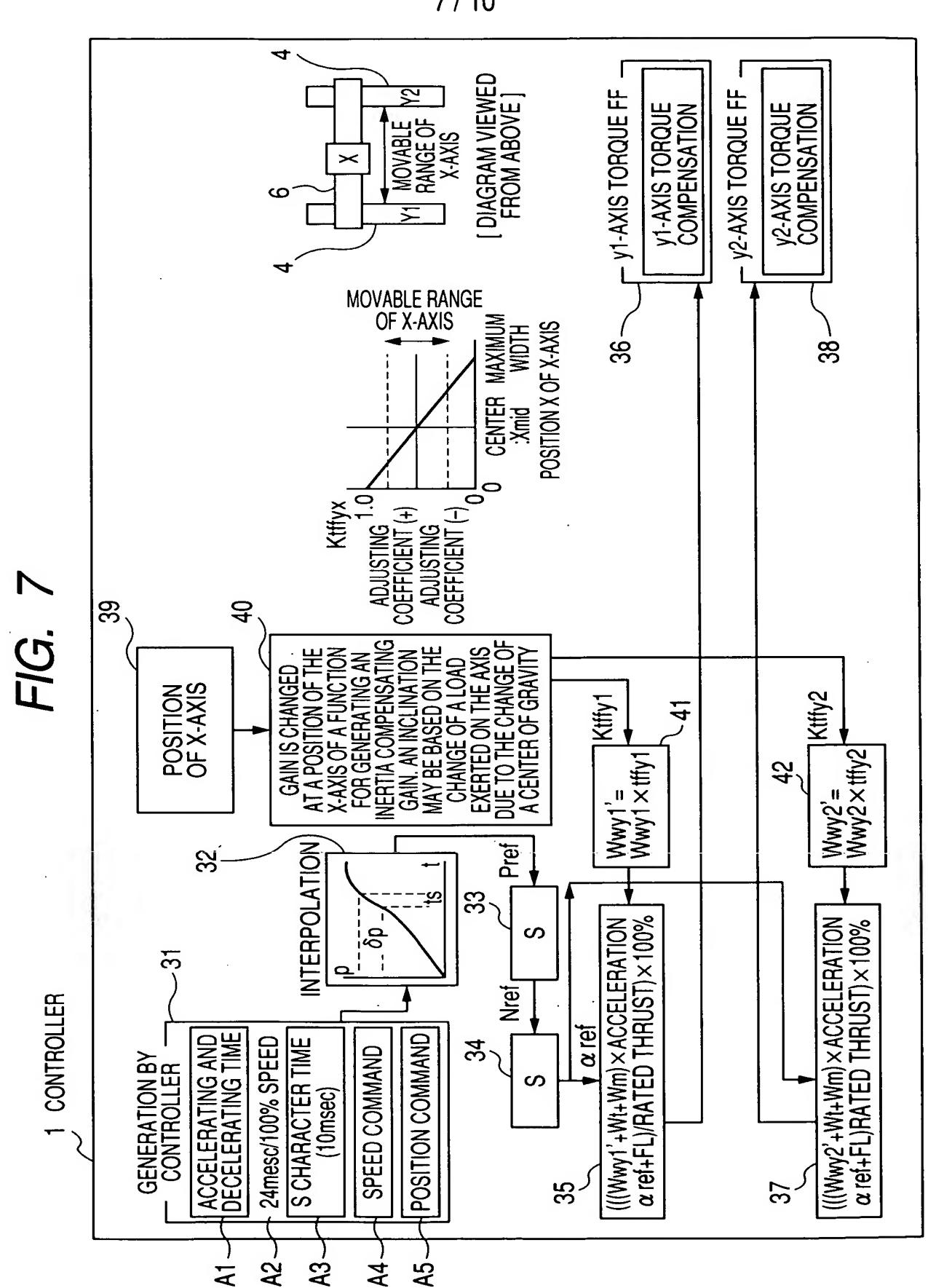


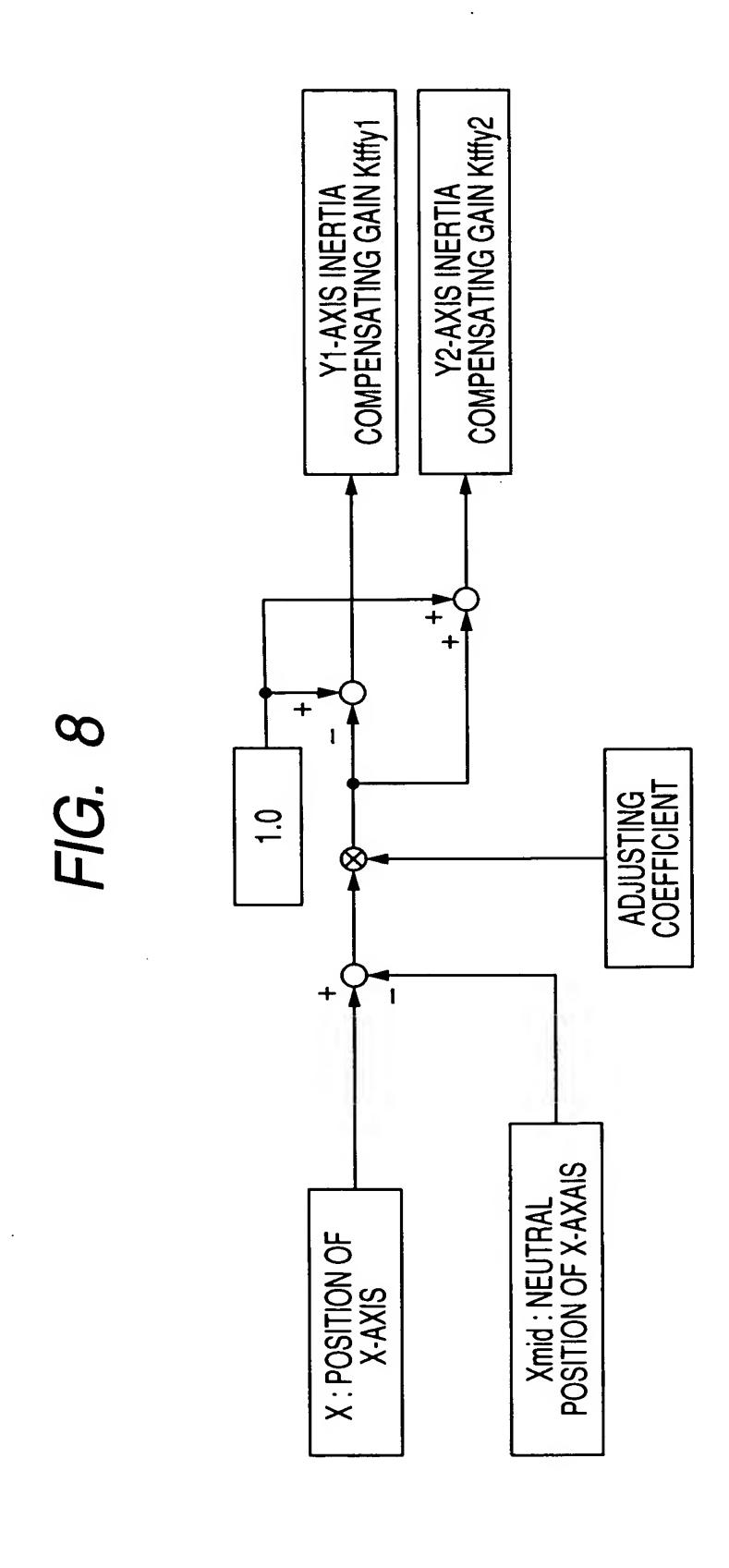
4. DEVIATION BETWEEN TWO AXES (MAXIMUM VALUE OF 30μ m)

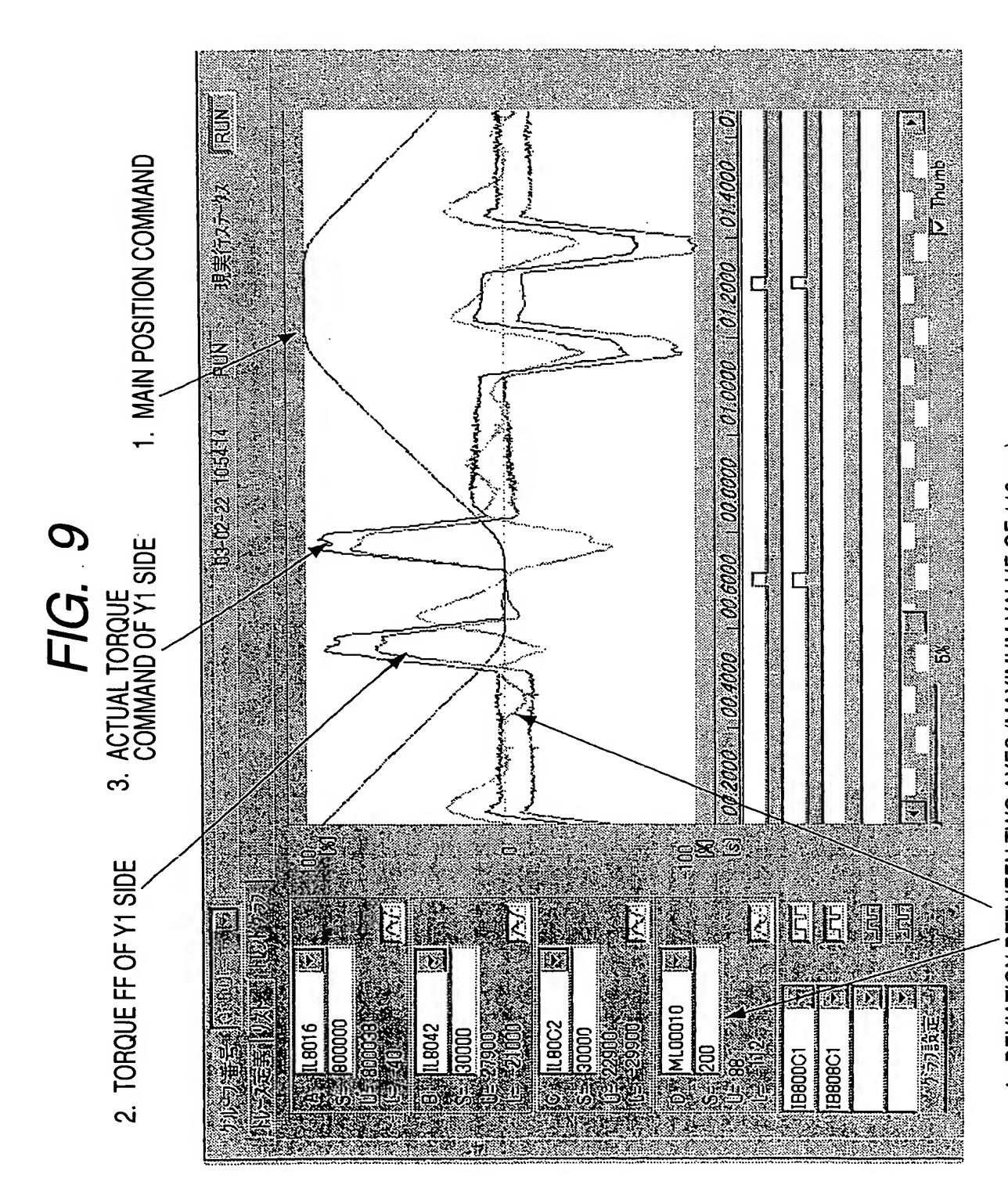


4. DEVIATION BETWEEN TWO AXES (MAXIMUM VALUE OF 11μ m)

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4. DEVIATION BETWEEN TWO AXES (MAXIMUM VALUE OF 112 μ m)

